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ABSTRACT

This practicum report describes the development of an instructional unit for educating faculty and clinical instructors in the role of tutor in problem-based learning, as applied to two courses in occupational therapy. Emphasis is on the specific content of the unit and appropriate instructional strategies and delivery methods. A search of the literature, committee feedback, and feedback from participants in a pilot workshop all contributed to development of the unit. It was determined that the instructional unit should include knowledge about the problem-based learning method, knowledge about course and tutorial session objectives, and knowledge about such tutorial skills as facilitating learning, providing content knowledge, and demonstrating commitment to the group. The one-day workshop included lectures, group discussions, and participation in tutorial sessions as both students and facilitators. Individual sections of the report include an introduction to the problem, a review of the literature, a discussion of methodology and procedures, presentation of results, and a discussion of conclusions, implications, and recommendations. Among 12 appendices are the pre- and post-test, a tutor evaluation form, a workshop outline, a list of instructional strategies, and handouts and overheads for the instructional unit. (Contains 24 references.) (DB)

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DEVELOPMENT OF AN INSTRUCTIONAL UNIT FOR EDUCATING FACULTY AND INSTRUCTORS IN THE ROLE OF THE TUTOR IN PROBLEM-BASED LEARNING

Curriculum and Program Planning

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A practicum report presented to Programs for Higher Education in partial fulfillment of the requirements for the degree of Doctor of Education

Nova Southeastern University

October, 1996

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DEVELOPMENT OF AN INSTRUCTIONAL UNIT FOR EDUCATING FACULTY AND INSTRUCTORS IN THE ROLE OF THE TUTOR IN PROBLEM-BASED LEARNING

by

Lori T. Andersen

October, 1996

This study was the development of an instructional unit for educating faculty and clinical instructors in the role of the tutor in problem-based learning. Two occupational therapy practice courses use the problem-based learning method. This study was needed because faculty and local clinical instructors who could be tutors, lack education in the problem-based learning method and the role of the tutor.

There were two research questions in developing this instructional unit: (a) "What specific content should be included?" and (b) "What are the appropriate instructional strategies and delivery methods?".

The procedures included conducting a literature review on the problem-base learning method, and the knowledge and skills needed by the tutor, and instructional design models. A

formative and summative committee provided feedback throughout the development of the instructional unit. Feedback was also received from participants of a pilot workshop.

It was determined that the instructional unit should include knowledge in the problem-based learning method, knowledge of course and tutorial session objectives, and knowledge in tutor skills of facilitating learning, providing content knowledge, and demonstrating commitment to the group. The one day workshop included lecture, group discussion, and participation in tutorial sessions as a student and facilitator.

There were two recommendations: (a) offer this workshop to educate faculty and clinical instructors in the role of the tutor, and (b) offer this workshop to clinical instructors to educate them in a method to develop clinical reasoning skills in students who are on clinical affiliations.

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Chapter 1

INTRODUCTION

The charter class of the Occupational Therapy Program at Nova Southeastern University began their studies in June 1994. The mission of the Occupational Therapy Program is to educate students to become highly skilled clinicians. To meet this goal the curriculum has been developed to educate students in the clinical reasoning process and self-directed learning skills.

Nature of the Problem

The traditional approach to education emphasizes use of lectures to educate students. The traditional approach has not been the most effective and efficient way to educate health care practitioners for future practice. It has been estimated that only about 20% of information taught in lectures will be retained (Barrows, 1994, p. 86). Students also complain that they often have to memorize a great many facts but have not been taught how to apply this information in clinical practice. Information taught to students today quickly becomes outdated with the rapid advances in scientific technology and the frequent changes in the health care system.

Alternative approaches such as problem-based learning have been demonstrated to be effective in developing clinical reasoning and self-directed learning skills. This method educates students in how to direct their own learning and how to apply information so that they will be effective practitioners.

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The cornerstone of the problem-based learning method is the small group discussions or tutorial group process (VanLeit, 1995). In the tutorial group students work together to develop solutions or treatment plans for the patient's problem presented to them in a case study.

The Occupational Therapy in Pediatrics and the Occupational Therapy in Physical Disabilities and Work Practice treatment courses at Nova Southeastern University have been developed to use the problem-based learning method. To make use of faculty and clinical instructors expertise in a variety of topics and to facilitate the transition from the classroom to the clinic by having students work on actual patient problems in local clinics, it would be beneficial to have numerous people available to be tutors for the small group or tutorial sessions. However, few of the occupational therapy faculty and local clinical instructors had been educated in the problem-based learning method or the role of the tutor in the problem-based learning method.

Purpose of the Study

The purpose of the study was to develop an instructional unit to educate tutors for the problem-based learning method in education. The Occupational Therapy in Pediatrics and the Occupational Therapy in Physical Disabilities and Work Practice courses use the problem-based learning method to educate students in clinical reasoning skills and self-directed learning skills to become effective health care practitioners in the future. This

instructional unit was needed to educate occupational therapy faculty and clinical instructors to participate as tutors in these occupational therapy treatment courses.

Significance to the Institution

Many faculty feel that with the present traditional approach and structure of courses, students have not developed adequate problem-solving skills and are not able to apply knowledge to clinical situations. Many students feel the same.

The problem-based learning method develops clinical reasoning skills and self-directed learning skills. However, to be successful in the mission of developing effective clinical reasoning skills and self-directed learning skills, tutors need to be educated about their role and the process of problem-based learning. This instructional unit will assist the program in developing and implementing a curriculum to meet its mission.

Relationship to Seminar

This practicum is related to the Curriculum and Program Planning seminar. This seminar provided a foundation for developing effective instructional units. As advocated by Kemp, Morrison, and Ross (1994, p. 6) a systematic method to plan, develop, evaluate, and manage the instructional process was used to ensure competent performance by learners.

Research Questions

There were two research questions for this study. First, "What specific content should be included in an instructional

unit to educate tutors to assist in the Occupational Therapy in Physical Disabilities and Work Practice and the Occupational Therapy in Pediatrics treatment courses at Nova Southeastern University which use the problem-based learning method?" Second, "What are the appropriate instructional strategies and delivery methods for an instructional unit to educate tutors to assist in the Occupational Therapy in Physical Disabilities and Work Practice, and the Occupational Therapy in Pediatrics treatment courses at Nova Southeastern University which use the problem-based learning method?"

Definition of Terms

For purposes of this practicum, the following terms were defined.

Course master. The occupational therapy professor at Nova Southeastern University who is in charge of the team of faculty teaching a specific course is the course master.

Problem-based learning method. This is a particular method of guiding student learning that is carefully structured and uses problem simulation to develop clinical reasoning skills and self-directed learning.

Tutor. This is an instructor who uses facilitory teaching skills in small group discussions to facilitate student independence in problem-solving and to develop students' clinical reasoning and self-directed learning skills.

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Chapter 2

REVIEW OF LITERATURE

Introduction

Traditional educational programs have used teacher-centered learning approaches that usually convey information through lectures and readings. These traditional educational curricula are ineffective as rapid increases in scientific knowledge make information taught today irrelevant tomorrow (Sadlo, Piper, & Agnew, 1994). To remain current in the health care field, practitioners will continually need to learn new information and be able to apply this knowledge in practice. One of the most common ways adults continue to learn throughout life is through self-directed learning (Candy, 1991, p.7). Educational strategies can be adapted to improve self-directed learning skills.

Problem-based Learning Method

Problem-based learning stresses the development of clinical reasoning skills and self-directed learning skills so that students learn how to learn (Barrows, 1994, p. 2). This instructional method is a departure from the traditional instructional method as it emphasizes student-centered learning in small discussion groups (VanLeit, 1995).

Case studies or patient simulation outlining patient problems provide the structure for problem-based learning. In small group discussions, tutorial group sessions, students work

together to solve patient problems outlined in these case studies (Barrows, 1986). Each small group discussion is facilitated by a tutor who guides the students in the clinical reasoning process in solving these patient problems (Barrows, 1994, p. 37; VanLeit, 1995). These small group tutorial sessions can also be used with students on clinical internships (Barrows, 1994, p. 114).

Tutor Knowledge

Blumberg and Michael (1992) define the attributes of classical problem-based learning as being student-centered and having the primary objective of developing students' self-directed learning skills. In contrast, traditional educational methods are teacher-centered and frequently use lectures. The tutor is very important in the success of the problem-based learning method. Different from the traditional role of an instructor in a teacher-centered program, it requires a change in attitude, and specific knowledge and skills. In line with this reasoning, tutor training at the University of Sherbrooke focused on changing attitudes of faculty toward a more student-centered approach (Des Marchais, 1990).

In the literature, various authors address the knowledge needed by tutors. Thomas (1992) stated that tutors should be oriented to course objectives. Eagle, Harasym, and Mandin (1992) stated that tutors also need to be well informed about specific cases and case objectives as well as the tutoring process.

Schmidt (1994) and Davis, Nairn, Paine, Anderson, and Oh (1992) found that the level of content expertise positively effected student learning. However, when revising the medical curricula at Dalhousie University to a problem-based learning format, Holmes and Kaufman (1994) sought non-content experts believing that they would not be as directive or teacher-centered as those who were content experts. Barrows (1992, p. 43) states that the ideal tutor be expert both at tutoring and an expert in the content being discussed. If this is not possible, it is essential to have a tutor with expert tutoring skills and some knowledge of the content of material being discussed.

Tutor Skills

The skills of the tutor are essential to the success of the problem-based learning method (Barrows, 1994, p. 89). A review of the literature describes skills of the tutor in three general categories. These categories are: (a) facilitates learning, (b) provides a degree of content expertise, and (c) demonstrates commitment to the group's learning.

Facilitating Learning

The tutor facilitates learning by: (a) being well informed about the problem-based learning process and by being able to guide students through the process emphasizing student directed discussion, (b) stimulating and motivating all students to participate in the process, (c) guiding the discovery of specific content through careful analysis of problems and generation of

learning issues, (d) questioning and probing to establish appropriate depth of knowledge and stimulating deep learning, and (e) stimulating evaluation of the process and knowledge gained through the process (Dolmans, Wolfhagen, Schmidt, & van der Vleuten, 1994). Mayo, Donnelly, Nash, and Schwartz (1993) state that the tutor guides the students through the clinical reasoning process. The best tutors ask thought provoking questions to assist the students in identifying learning needs. Giving objective and constructive feedback to individuals and to the group is another skill that a tutor needs (Mayo, Donnelly, & Schwartz, 1995; P. Salvatori, personal communication, September 18, 1996).

Provides Content Expertise

The tutor provides content expertise by: (a) having at least a general understanding of the subject matter, and (b) using this knowledge appropriately to guide discussions and stimulate student understanding of the subject matter (Dolmans, Wolfhagen, Schmidt, & van der Vleuten, 1994). The best tutor will share their experiences and information without giving away the answers (Mayo, Donnelly, & Schwartz, 1995). The tutor can contribute to an understanding of the subject matter and direct the identification of learning issues to specific content because of their knowledge of the subject matter, and knowing how to phrase guiding questions (Schmidt, van der Arend, Moust, Kokx, & Boon, 1993).

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Commitment to Group

The tutor demonstrates commitment to the group by: (a) being enthusiastic and motivated, (b) showing interest and caring for the students, and (c) facilitating group functioning (Dolmans, Wolfhagen, Schmidt, & van der Vleuten, 1994). Des Marchais (1990) believes that a tutor shows caring by demonstrating tolerance of student mistakes, demonstrating confidence in the students' ability to learn, and providing a comfortable atmosphere to learn. Mayo, Donnelly, and Schwartz (1995) believe that it is important for the tutor to be enthusiastic, sensitive, and creative, however these personal attributes cannot be taught in a formal program.

The effective tutor needs to be a good listener to facilitate the tutorial group process (P. Salvatori, personal communication, September 18, 1996). Group dynamics can be a problem when a tutor avoids dealing with a student who does not participate or one who dominates. Group dynamics can also be a problem when the tutor avoids dealing with the group that can not agree or can not get started with the task at hand (McDermott & Anderson, 1991).

Tutor Training

Specific training is needed to educate tutors how they can facilitate development of clinical reasoning and self-directed learning skills (Barrows, 1994, p. 2). Grand'Maison and Des Marchais (1991) have developed a tutor training program that

focuses on helping new tutors understand and assimilate the problem-based learning method, understand tutoring tasks, and acquire tutoring skills.

Holmes and Kaufman (1994) use a seven stage process for development of tutors. The stages are: (a) orientation workshop, (b) orientation to instructional unit, (c) weekly tutor meetings; (d) observation of tutors and informal feedback, (e) evaluation of instructional unit, (f) evaluation of the tutor, and (g) continuing education for the tutor. It is important when training tutors to have them participate in a tutorial session and also to practice their skills as a tutor facilitating a tutorial session (P. Salvatori, personal communication, September 18, 1996; Wilkerson, 1995).

Dolmans, Wolfhagen, and Snellen-Balendong (1994) advocate providing feedback to tutors on their skills. They have developed a tutor evaluation form that can been used by students to evaluate whether the tutor demonstrated certain behaviors and skills. Tutors will also need to evaluate student performance and how to show students to evaluate themselves (Thomas, 1992). As part of the feedback process for students, tutors will need to know what criteria to use to give feedback.

Tutor training needs to be ongoing (Bernstein, Tipping, Bercovitz, & Skinner, 1995). This ongoing training can take place through observations of new tutors facilitating tutorial

groups and giving feedback and through open discussion meetings for tutors (Thomas, 1992).

Instructional Design

Instructional design is a process of identifying needs and examining problems to identify solutions (Rothwell, 1992, p. 9). Kemp, Morrison, and Ross (1994, p. 6) advocate use of a systematic method to plan, develop, evaluate, and manage the instructional process to ensure successful learning. They identify fundamental elements common to all instructional design processes. These elements are identification of learner characteristics, identifying objectives of the instructional unit, identifying the best method for teaching the instructional unit, and determining how to evaluate if learning took place.

Kemp, Morrison, and Ross (1994, pp. 8-9) have developed a comprehensive instructional design model. The key elements in this model are: (a) identifying instructional problems, (b) identifying learner characteristics, (c) identifying subject content, (d) identifying instructional objectives, (e) sequencing content, (f) designing instructional strategies, (g) planning instructional delivery, (h) developing evaluation instruments, and (i) selecting resources. The steps in this instructional design model are not necessarily completely sequentially. As one key element is developed, it may require adjustments of one or more other key elements.

To be efficient and effective in training faculty and clinical instructors in the role of the tutor it is essential to use an instructional design process. Using this process will ensure that the needs of participants will be met and successful learning will take place.

Summary

The literature has shown the need for using an instructional design model to develop an instructional unit on the role of the tutor. This instructional unit should include specific evaluations to determine if the objectives of the unit were met.

The content of the instructional unit should educate the participants about the problem-based learning process, the role of the tutor, and specific objectives of the courses these tutors will be assisting, and specific objectives of the case studies that will be used in the tutorials the tutor facilitate.

The format of the instructional unit should include delivery methods that are used in the problem-based learning courses. These methods include lecture, discussion, and tutorial sessions. The participants should have the opportunity to participate as a student in a tutorial session and an opportunity to facilitate a tutorial session.

Chapter 3

METHODOLOGY AND PROCEDURES

Procedures

This study followed the developmental research methodology. First, a review of the literature was conducted. The review included topics of instructional design, problem-based learning methods, and the role of the tutor in problem-based learning.

Next, criteria was established for the knowledge and skills needed by tutors using the problem-based learning method. The criteria was based on information obtained from the literature review, input from the course master responsible for the Occupational Therapy in Pediatrics course, and interviews with other occupational therapy and physical therapy educators who use the problem-based learning method. The pediatric course master and one occupational therapy faculty member from Nova Southeastern University reviewed the list to validate the criteria. A list of the validators and how and why they were chosen is included in the appendix (see Appendix A).

A draft of the instructional unit was developed using the instructional design process outlined by Kemp, Morrison, and Ross (1994, pp. 8-9). The formative committee was given a draft of this unit to read, review, and provide feedback. The members of the formative committee worked individually. The members gave verbal feedback. One member approved the draft as it was. Two other members gave feedback. They suggested changing the wording

of one of the instructional handouts to improve clarity. The suggested revisions were made to this handout. The entire formative committee reviewed the changes individually and approved the draft of the instructional unit. The formative committee consisted of the pediatric course master and two occupational therapy faculty members from Nova Southeastern University. A complete listing of the participants on the formative committee and why and how they were chosen is included in the appendix (see Appendix B).

The summative committee was given a copy of the draft approved by the formative committee, for review. The summative committee reviewed the draft individually, and gave feedback verbally. Two members of the summative committee approved the draft as it was. One member of the summative committee suggested that the pre/post test format be changed from a true/false format to a multiple choice format. This change was made. Revised drafts were given to all members of the formative and summative committees. These members again worked individually in reviewing the draft. All members of both committees approved this final draft. A complete listing of the participants on the summative committee and why and how they were chosen is included in the appendix (see Appendix C).

The instructional unit was then pilot tested with one occupational therapy faculty member and four clinical instructors. These participants provided verbal and written

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feedback on the instructional unit. The participants were given a pre and post test developed during the development of the instructional unit (see Appendix D) and were evaluated on ability to facilitate a tutorial session using a form developed during the development of the instructional unit (see Appendix E) to determine if the workshop objectives were met.

Results of the pre and post tests, the tutor evaluations, and the workshop evaluations were presented to the summative committee. Recommendations regarding the future use of the instructional unit were also given to the summative committee. The summative committee approved the instructional unit and recommendations. Recommendations regarding the future use of the instructional unit were made to the occupational therapy faculty at Nova Southeastern University. A copy of the instructional unit is included in the appendixes (see Appendixes C-L).

Assumptions

It was assumed that the formative committee members had the knowledge in: (a) the problem-based learning method, (b) the knowledge and skills needed by the tutor, and (c) the knowledge of the instructional design process, to guide the development of this instructional unit. It was also assumed that the summative committee evaluation of the format and content of the instructional unit was valid.

Limitations

This product is limited in that it is specific to the education of occupational therapy instructors and clinical instructors in the role of the tutor in problem-based learning for the Occupational Therapy in Physical Disabilities and Work Practice and the Occupational Therapy in Pediatrics courses at Nova Southeastern University. The role, knowledge, and the skills required of the tutor can be varied in different courses and different programs.

Chapter 4

RESULTS

The purpose of this study was to determine the appropriate content and format for an instructional unit to educate faculty and clinical instructors in the role of the tutor in problem-based learning and to develop an instructional unit. In developing this instructional unit, a thorough review of the literature was conducted. This literature review included the topics of problem-based learning methods, and the knowledge and skills needed by the tutor in problem-based learning, tutor training, and the instructional design process.

The literature emphasized that the problem-based learning method is unlike the more passive, traditional, teacher-centered approach to education. The problem-based learning format is a student-centered approach that uses small group discussions, tutorial sessions, to engage the students in active, collaborative learning to solve patient problems. As this approach is non-traditional, it often involves training tutors in specific knowledge and skills, and changing teacher attitudes from a more teacher-centered approach to a student-centered approach.

Based on information obtained from the literature review, input from the course master responsible for the Occupational Therapy in Pediatrics course, and interviews with other occupational therapy and physical therapy educators who use the

problem-based learning method, criteria was established for the knowledge and skills needed by tutors. The tutor needs knowledge in several areas. These areas include: (a) knowledge in the philosophy and formats used in problem-based learning, (b) knowledge of specific course objectives, (c) knowledge of the objectives of each tutorial case study, and (d) knowledge of the clinical reasoning process. The ability to facilitate learning, the ability to provide content expertise in a judicial manner, and the ability to demonstrate commitment to the group by facilitating the group process are important tutor skills. This criteria initially defined the content areas for the instructional unit. The complete listing of criteria is included in the appendix (see Appendix F).

In reviewing the literature, it was determined that the most appropriate and effective way to provide tutor training was through development of a one day workshop that uses the same instructional methods used in the problem-based learning classes. This training focuses on educating participants in the knowledge and skills the tutor needs. The workshop also provides an opportunity for participants to take part in tutorial sessions, both as a student and as a facilitator.

A comprehensive instructional design process developed by Kemp, Morrison, and Ross (1994, pp. 8-9) was used to develop this instructional unit. The results of the key elements or steps of the process are as follows:

1. The first key element was identifying instructional problems. The need for instruction was determined by an anticipated need for additional tutors to assist with tutorial sessions in the Occupational Therapy in Physical Disabilities and Work Practice course and the Occupational Therapy in Pediatric course.

2. The second key element was identifying learner characteristics. The learners are all licensed occupational therapists. Some of the learners are faculty members who have experience teaching occupational therapy students. Some of the learners are clinical instructors who have experience with supervising and teaching students on their clinical rotations. Learners have had minimal experience with the problem-based learning method.

3. The third key element was performing a task analysis. The first research question for this study which was "What specific content should be included in an instructional unit to educate tutors to assist in the Occupational Therapy in Physical Disabilities and Work Practice and the Occupational Therapy in Pediatrics treatment courses at Nova Southeastern University which use the problem-based learning method?" The literature review and communications with faculty experienced with problem-based learning, and communication with formative and summative committee members resulted in the specific content being

identified. A list of knowledge and skills needed by tutors is listed in the appendix (see Appendix F).

4. The fourth key element was defining instructional objectives. As advocated by Kemp, Morrison, and Ross (1994, pp. 77-78), instructional objectives were developed as a means to develop appropriate instruction, to evaluate learning, and to inform and guide the learner. The instructional objectives are listed in the appendix (see Appendix G).

5. The fifth key element was determining content sequencing. An outline for the instructional unit was developed to show the sequencing of instructional activities (see Appendix H).

6. The sixth key element was developing instructional strategies. Instructional strategies were developed to meet the instructional objectives (see Appendix I).

7. The seventh key element was developing instructional deliveries. The second research question for this study was "What are the appropriate instructional strategies and delivery methods for an instructional unit to educate tutors to assist in the Occupational Therapy in Physical Disabilities and Work Practice and the Occupational Therapy in Pediatrics treatment courses at Nova Southeastern University which use the problem-based learning method?" Through review of the literature, communication with faculty who are experienced with the problem-based learning method, and feedback from the formative and

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summative committee members, it was determined that the appropriate method to deliver instruction would be through a one-day workshop that included lecture format, group discussion, participation in a tutorial session as a tutor, and practice facilitating a tutorial session.

8. The eighth key element was to develop evaluation instruments. To evaluate whether learning took place, pre and post tests were developed (see Appendix D), and a tutor evaluation form to evaluate tutor skills was developed (see Appendix E). A listing of the method to evaluate each objective is included in the appendix (see Appendix J). A form to evaluate the effectiveness of the workshop was developed during this instructional design process (see Appendix K).

9. The ninth key element was to develop instructional resources. Overhead transparencies and handouts were used as instructional tools in this workshop. These tools are included in the appendix (see Appendix L).

During development of the instructional unit, a formative committee was given a draft of the instructional unit which they reviewed individually. The members provided verbal feedback. One member approved the draft. Two members suggested word changes to an instructional handout to improve the clarity. These revisions were made to this handout. The formative committee members were all given the revised draft to review

again. The worked individually and approved this draft of the instructional unit.

The summative committee was given this revised draft to review. The members worked individually and provided verbal feedback. Two members approved this draft of the instructional unit. The third member suggested a change in the format of the pre and post test to a multiple choice format rather than a true/false format. This revision was made. The revised draft of the instructional unit was given to all members of the formative and summative committees. They all reviewed this draft individually. All members approved this revised draft of the instructional unit.

The instructional unit was pilot tested with occupational therapy faculty and clinical instructors. The participants included one faculty member and four clinical instructors. They provided verbal and written feedback on the instructional unit. The participants were also given a pre and post test (see Appendix D) and were evaluated on ability to facilitate a tutorial session (see Appendix E) to determine if the workshop objectives were met. Based on the results of these evaluations the workshop objectives were met. Specific verbal feedback regarding the configuration of the afternoon tutorial groups was given by the participants. It was suggested that more tutorial sessions should be run simultaneously to keep all participants

actively involved at all times. This feedback will be used to improve the workshop.

Overall, the workshop was very favorably reviewed by the participants on the workshop evaluation form. Participants indicated that after the workshop, they felt capable of facilitating a tutorial session. All participants felt strongly that the information presented in the workshop would be very useful in their jobs. Participants also indicated that they liked the active participation in the workshop. They also commented that they found the problem-based learning method to be effective method to learn.

The summative committee were given the results of the pilot workshop and recommendations for future use of the instructional unit. These results included the pre and post test results, the tutor evaluations, the workshop evaluations, and a verbal summary of the participants verbal comments. The first recommendation was to continue to present this workshop to faculty and clinical instructors to educate them in the role of the tutor so they will be able to assist with the two practice courses using the problem-based learning method. The second recommendation was to present this workshop to clinical instructors to educate them in an effective instructional method to develop clinical reasoning skills in students on their clinical affiliations. Two summative committee members met together to review the results and recommendations. One committee member reviewed the results and

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recommendations individually. The summative committee approved the workshop and the recommendations. Recommendations regarding the instructional unit were made to the occupational therapy faculty at Nova Southeastern University. A copy of the instructional unit is included in the appendix (see Appendixes C-L).

Chapter 5

DISCUSSION, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Discussion

This instructional unit was developed to educate faculty and clinical instructors in the role of the tutor in problem-based learning. This instructional unit provides training that will enable faculty and clinical instructors to assist in tutorial sessions in the Occupational Therapy in Physical Disabilities and Work Practice course and the Occupational Therapy in Pediatrics course.

This instructional unit was developed using a developmental research methodology. This process included conducting a literature review, obtaining input from faculty with experience using the problem-based learning method, and obtaining input from a formative and summative committee. The literature review and information from faculty who are experienced in the problem-based learning method provided significant information on the knowledge and skills a tutor needs as well as on the appropriate format for this instructional unit. Suggestions from the formative and summative committee members and from participants in the pilot workshop assisted with the development of the instructional unit.

The evaluation results indicated that the workshop was successful in meeting the objectives. The workshop also received favorable evaluations from the participants indicating the instructional strategies and delivery methods were appropriate.

The participants indicated that they felt capable of assisting as tutors for the occupational therapy practice course tutorials indicating that the specific content was appropriate. They also agreed with Barrows (1994, p. 114) who felt that this process can be used with students who are on their clinical affiliations.

Conclusions

The specific content that should be included in an instructional unit to educate tutors to assist in the Occupational Therapy treatment courses at Nova Southeastern University that use the problem-based learning format is content about the knowledge and skills needed by the tutor to be effective in these courses. The tutor should have knowledge in (a) the philosophy of problem-based learning, (b) the structure and format of the course using the problem-based learning method, (c) the process of clinical reasoning, (d) the objectives of the specific course, and (e) the specific objectives of the tutorial case. The tutor needs skill in facilitating learning, providing appropriate content knowledge, and demonstrating commitment to the group's learning.

The appropriate instructional strategies and delivery methods that should be used in this instructional unit should include those similar to those used in the problem-based learning classes. These include lectures, discussions, and simulated tutorial sessions which give participants to be students in a

tutorial session and to facilitate a session. It is also important to have ongoing training for tutors.

Implications

The specific content, the instructional strategies, and delivery methods used in this workshop were effective in educating faculty and clinical instructors in the role of the tutor in problem-based learning. The participants in the pilot workshop also identified the value of the workshop in educating clinical instructors in an effective method of developing clinical reasoning skills in students in the clinical setting. The workshop can be offered with those two objectives in mind.

Recommendations

There are two recommendations for this workshop. First, this workshop should be offered to educate faculty and clinical instructors to be tutors for the occupational therapy practice courses that use the problem-based learning method of instruction. Second, this workshop should be offered to clinical instructors to educate them in an effective method to develop clinical reasoning skills in students on their clinical affiliations.

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APPENDIXES

Appendix A

VALIDATORS

Sandra Dunbar, M.A., OTR
Assistant Professor, Occupational Therapy
Nova Southeastern University, Ft. Lauderdale, Florida
Experience in clinical education and teaching using the problem-based method

Carol Reed, M.S., OTR
Associate Professor, Occupational Therapy
Nova Southeastern University, Ft. Lauderdale, Florida
Extensive experience in academia, clinical practice, instructional design, and experience with problem-based learning method

Appendix B

FORMATIVE COMMITTEE MEMBERS

Barbara Kornblau, JD, OTR, FAOTA
Professor of Occupational Therapy and Public Health
Nova Southeastern University, Ft. Lauderdale, Florida
Significant experience in academia and development of workshops

Sandra Dunbar, M.A., OTR
Assistant Professor, Occupational Therapy
Nova Southeastern University, Ft. Lauderdale, Florida
Experience in clinical education and teaching using the problem-based method

Carol Reed, M.S., OTR
Associate Professor, Occupational Therapy
Nova Southeastern University, Ft. Lauderdale, Florida
Extensive experience in academia, clinical practice, instructional design, and experience with problem-based learning method

Appendix C

SUMMATIVE COMMITTEE MEMBERS

Reba Anderson, Ph.D., OTR, FAOTA
Occupational Therapy Program Director and Associate Dean
Professor of Occupational Therapy
Nova Southeastern University, Ft. Lauderdale, Florida
Extensive experience in academia, program evaluation, instructional design, and workshop development

Ferol Ludwig, Ph.D., OTR, FAOTA
Professor of Occupational Therapy
Nova Southeastern University
Ft. Lauderdale, Florida
Extensive experience in academia, instructional design, and program evaluation

Carol Reed, M.S., OTR
Associate Professor, Occupational Therapy
Nova Southeastern University, Ft. Lauderdale, Florida
Extensive experience in academia, clinical practice, instructional design, and experience with problem-based learning method

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Appendix D

Pre-Test/Post Test

PRE-TEST

WORKSHOP ON PROBLEM-BASED LEARNING

Please circle the **BEST** answer.

1) One of the main objectives of problem-based learning is:
   A) to stimulate students to learn in a competitive atmosphere
   B) to teach students how to teach
   c) to teach students to depend on others to help solve problems
   D) to develop self-directed, life long learning skills
2) Advocates of PBL believe that students learn best:
   A) in a highly structured situation
   B) when there is a need to learn to solve a relevant problem
   C) when the teacher decides what the students should learn
   D) in a competitive environment
3) Problem-based learning formats may include:
   A) small group sessions
   B) lectures
   C) lab activities
   D) all of the above
4) Two group members continually argue in a tutorial session. The tutor should:
   A) let the group handle the problem
   B) talk to each student individually to mediate the situation
   C) facilitate the group to acknowledge and deal with the problem
   D) ignore the problem to avoid disrupting the group discussion
5) Learning issues are identified:
   A) by the tutor
   B) by the group
   C) by the leader of the group
   D) by the group recorder
6) An effective tutor
   A) shares expertise by lecturing in tutorial sessions
   B) determines the learning issues for the group
   C) acts as group leader to facilitate group process
   D) selectively shares information and personal experience to facilitate student learning and the tutorial process
7) In PBL students can receive feedback on their performance:
   A) through assessment by their peers
   B) through self-assessment
   C) through assessment by the tutor
   D) all of the above

POST-TEST
WORKSHOP ON PROBLEM-BASED LEARNING

Please circle the **BEST** answer.

1) One of the main objectives of problem-based learning is:
   A) to stimulate students to learn in a competitive atmosphere
   B) to teach students how to teach
   c) to teach students to depend on others to help solve problems
   D) to develop self-directed, life long learning skills
2) Advocates of PBL believe that students learn best:
   A) in a highly structured situation
   B) when there is a need to learn to solve a relevant problem
   C) when the teacher decides what the students should learn
   D) in a competitive environment
3) Problem-based learning formats may include:
   A) small group sessions
   B) lectures
   C) lab activities
   D) all of the above
4) Two group members continually argue in a tutorial session. The tutor should:
   A) let the group handle the problem
   B) talk to each student individually to mediate the situation
   C) facilitate the group to acknowledge and deal with the problem
   D) ignore the problem to avoid disrupting the group discussion
5) Learning issues are identified:
   A) by the tutor
   B) by the group
   C) by the leader of the group
   D) by the group recorder
6) An effective tutor
   A) shares expertise by lecturing in tutorial sessions
   B) determines the learning issues for the group
   C) acts as group leader to facilitate group process
   D) selectively shares information and personal experience to facilitate student learning and the tutorial process
7) In PBL students can receive feedback on their performance:
   A) through assessment by their peers
   B) through self-assessment
   C) through assessment by the tutor
   D) all of the above

Appendix E

Tutor Evaluation

Please indicate your degree of agreement with each statement by circling the appropriate number.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1) The tutor is knowledgeable about the PBL process.	1	2	3	4	5
2) The tutor encourages all students to actively participate.	1	2	3	4	5
3) The tutor asks appropriate questions to stimulate student analysis of the problem.	1	2	3	4	5
4) The appropriately guides students to generate learning issues.	1	2	3	4	5
5) The tutor facilitates evaluation of the tutorial session.	1	2	3	4	5
6) The tutor is knowledgeable about the subject matter.	1	2	3	4	5
7) The tutor contributes expertise appropriately in guiding students to a better understanding of the subject matter.	1	2	3	4	5
8) The tutor demonstrates caring for the students.	1	2	3	4	5
9) The tutor facilitates effective group dynamics.	1	2	3	4	5
10) The tutor provides a comfortable learning atmosphere.	1	2	3	4	5

Comments:

Appendix F

TUTOR KNOWLEDGE AND SKILLS

Tutor Knowledge

1) Philosophy of problem-based learning (PBL)
2) Structure of problem-based learning
3) Process of Clinical Reasoning/Critical Thinking
4) Course Overview and Objectives
5) Tutorial case objectives

Tutor Skills

1) Facilitates learning by:
   a) Being well informed about the PBL process and by being able to guide the students through the process emphasizing student directed discussion.
   b) Stimulating and motivating all students to participate in the process.
   c) Guiding discovery of specific content through stimulating careful analysis of problems and generation of learning issues.
   d) Questioning and probing to establish appropriate depth of knowledge; stimulating deep learning.
   e) Stimulating evaluation of process and knowledge gained through the process.

2) Provides content knowledge input by:
   a) Having an understanding of the subject matter covered and contributes towards better understanding of subject matter through appropriate and timely input.
   b) Assisting in distinguishing main issues from minor issues to keep students on track in discussion.

3) Demonstrates commitment to group's learning by:
   a) Demonstrating interest, enthusiasm, and caring for students and provides a pleasant, productive, and collaborative learning environment.
   b) Facilitates good interpersonal relations and group dynamics.

Appendix G

WORKSHOP OBJECTIVES

1) Participants will be able to differentiate the philosophy of problem-based learning from that of traditional learning.

2) Participants will be able to describe the structure and format of the problem-based learning method used in the Occupational Therapy in Physical Disabilities and Occupational Therapy in Pediatrics courses at Nova Southeastern University to develop clinical reasoning skills in students.

3) Participants will demonstrate the following tutor skills when facilitating a tutorial group:

a) guiding the students through the PBL process emphasizing student directed discussion
b) stimulating and motivating all students to participate in the process
c) guiding discovery of specific content through stimulating careful analysis of problems and generation of learning issues
d) questioning and probing to establish appropriate depth of knowledge; stimulating deep learning
e) contributing towards better understanding of subject matter through appropriate and timely input
f) assisting in distinguishing main issues from minor issues to keep students on track in discussion
g) demonstrating interest, enthusiasm, and caring for students and provides a pleasant, productive, and collaborative learning environment
h) facilitates good interpersonal relations and group dynamics

4) Participants will demonstrate ability to evaluate students' performance in a tutorial group session.

5) Participants will demonstrate ability to evaluate tutors' performance in facilitating a tutorial session.

Appendix H

WORKSHOP OUTLINE

I. Introduction
   A. Pre-test
   B. Review of Workshop objectives
II. Philosophy of Problem-based learning - lecture format
   A. New Learning Paradigm
   B. Significance to developing contemporary, competent clinicians
III. Structure of Problem-based learning - lecture format
   A. Use of lectures, labs, tutorial sessions
   B. Tutorial Process
      1. Case generated triggers
      2. Clinical reasoning process
      3. Learning issues
      4. Role of the tutor; tutor skills
      5. Recording forms
IV. Participating in as students in a tutorial session - tutorial session format
   A. Group discussion re: tutorial process - discussion format
   B. Group discussion re: tutorial skills - discussion format
V. Course structure/objectives
   A. Occupational Therapy in Physical Disabilities and Work Practice
   B. Occupational Therapy in Pediatrics
VI. Objectives for case studies for afternoon session - lecture and discussion format
   A. Case study - patient with a wrist fracture
   B. Case study - client with a learning disability
VII. Lunch
VIII. Application of knowledge to actual tutorial session - tutorial session format
   A. Practice facilitating a tutorial session
   B. Evaluation of students in a tutorial session
   C. Evaluation of tutor
   D. Tutorial session wrap-ups
IX. Workshop wrap up/Final thoughts
   A. Post test
   B. Workshop evaluation

Appendix I

INSTRUCTIONAL STRATEGIES

Objective 1 - Participants will be able to differentiate the philosophy of problem-based learning from that of traditional learning.

Initial presentation - Lecture and discussion on the differences between problem-based learning and traditional learning.

Generative strategy - Prompt participant to recall and discuss the differences between problem-based learning and traditional learning.

Objective 2 - Participants will be able to describe the structure and format of the problem-based learning method used in the Occupational Therapy in Physical Disabilities and Occupational Therapy in Pediatrics courses at Nova Southeastern University to develop clinical reasoning skills in students.

Initial presentation - Lecture and discussion about the clinical reasoning process taught and the structure and format of the problem-based learning method used in the Occupational Therapy in Physical Disabilities and Occupational Therapy in Pediatrics courses at Nova Southeastern University.

Generative strategy - Prompt the participant to recall the specific objectives, structure, and format of the Occupational Therapy in Physical Disabilities and Occupational Therapy in Pediatrics courses at Nova Southeastern University.

Objective 3 - Participants will demonstrate the following tutor skills when facilitating a tutorial group:

a) guiding the students through the PBL process emphasizing student directed discussion
b) stimulating and motivating all students to participate in the process
c) guiding discovery of specific content through stimulating careful analysis of problems and generation of learning issues
d) questioning and probing to establish appropriate depth of knowledge; stimulating deep learning
e) contributing towards better understanding of subject matter through appropriate and timely input
f) assisting in distinguishing main issues from minor issues to keep students on track in discussion

INSTRUCTIONAL STRATEGIES
(Continued)

g) demonstrating interest, enthusiasm, and caring for students and provides a pleasant, productive, and collaborative learning environment
h) facilitates good interpersonal relations and group dynamics

Initial presentation - Lecture and discussion about the knowledge, role, and skills of a tutor. Participants will participate in a tutorial session as a student to understand the problem-based learning clinical reasoning process and to observe the tutorial process. Participants will also participate as a tutor in facilitating a tutorial session.

Generative strategy - Prompt the student to recall and apply the problem-based learning clinical reasoning process and the skills of a tutor in facilitating a tutorial group.

Objective 4 - Participants will demonstrate ability to evaluate students' performance in a tutorial group session.

Initial presentation - Lecture and discussion about the student assessment form. Participants will also assess students participation in the tutorial session using this form.

Generative strategy - Prompt the participant to assess student performance and to give student constructive feedback about performance.

Objective 5 - Participants will demonstrate ability to evaluate tutors' performance in facilitating a tutorial session.

Initial presentation - Lecture and discussion about tutor's knowledge, role, and skills. Lecture and discussion about the tutorial evaluation form. Participants will rate the tutor in the morning tutorial session. Participants will also rate each other's performance as tutors in the afternoon tutorial session.

Generative strategy - Prompt the participant to be able to evaluate a tutor's performance, including self-assessment of performance as a tutor.

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Appendix J

EVALUATION OF WORKSHOP OBJECTIVES

Objective 1: Participants will be able to differentiate the philosophy of problem-based learning from that of traditional learning.

Evaluation Method: Post-test questions # 1,2,3.

Objective 2: Participants will be able to describe the structure and format of the problem-based learning method used in the Occupational Therapy in Physical Disabilities and Occupational Therapy in Pediatrics courses at Nova Southeastern University to develop clinical reasoning skills in students.

Evaluation Method: Post-test questions # 3, tutor evaluation question # 1.

Objective 3: Participants will demonstrate the following tutor skills when facilitating a tutorial group:

a) guiding the students through the PBL process emphasizing student directed discussion
b) stimulating and motivating all students to participate in the process
c) guiding discovery of specific content through stimulating careful analysis of problems and generation of learning issues
d) questioning and probing to establish appropriate depth of knowledge; stimulating deep learning
e) contributing towards better understanding of subject matter through appropriate and timely input
f) assisting in distinguishing main issues from minor issues to keep students on track in discussion
g) demonstrating interest, enthusiasm, and caring for students and provides a pleasant, productive, and collaborative learning environment
h) facilitates good interpersonal relations and group dynamics

Evaluation Method: Post-test questions #4, 5, 6, 7 and tutor evaluation.

Objective 4: Participants will demonstrate ability to evaluate students' performance in a tutorial group session.

Evaluation Method: Post-test question #7, evaluation of participants assessment of students.

EVALUATION OF WORKSHOP OBJECTIVES
(Continued)

5) Participants will demonstrate ability to evaluate tutors' performance in facilitating a tutorial session.

Evaluation Method: Evaluation of participants evaluations of other tutors performance and self-assessment of tutor performance.

Appendix K

WORKSHOP EVALUATION

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1) The objectives were clearly communicated.	1	2	3	4	5
COMMENTS:					
2) The methods of instruction were appropriate for learning this material.	1	2	3	4	5
COMMENTS:					
3) The audio visual and written materials were helpful and appropriate for learning this workshop.	1	2	3	4	5
COMMENTS:					
4) The workshop provided opportunities for participation and discussion.	1	2	3	4	5
COMMENTS:					
5) The information presented will be useful to me in my job.	1	2	3	4	5
COMMENTS:					
6) My expectations for the course were met.	1	2	3	4	5
COMMENTS:					

WORKSHOP EVALUATION
(Continued)

7) The thing(s) I liked **best** about this course was (were):

8) The thing(s) I liked **least** about this workshop was (were):

9) How might this workshop be used to benefit your workplace and similar types of workplaces?

10) How might this workshop be changed to benefit your workplace and similar types of workplaces?

Appendix L

Handouts and Overheads for Instructional Unit

WORKSHOP OBJECTIVES

1) Participants will be able to differentiate the philosophy of problem-based learning from that of traditional learning.

2) Participants will be able to describe the structure and format of the problem-based learning method used in the Occupational Therapy in Physical Disabilities and Occupational Therapy in Pediatrics courses at Nova Southeastern University to develop clinical reasoning skills in students.

3) Participants will demonstrate the following tutor skills when facilitating a tutorial group:

a) guiding the students through the PBL process emphasizing student directed discussion
b) stimulating and motivating all students to participate in the process
c) guiding discovery of specific content through stimulating careful analysis of problems and generation of learning issues
d) questioning and probing to establish appropriate depth of knowledge; stimulating deep learning
e) contributing towards better understanding of subject matter through appropriate and timely input
f) assisting in distinguishing main issues from minor issues to keep students on track in discussion
g) demonstrating interest, enthusiasm, and caring for students and provides a pleasant, productive, and collaborative learning environment
h) facilitates good interpersonal relations and group dynamics

4) Participants will demonstrate ability to evaluate students' performance in a tutorial group session.

5) Participants will demonstrate ability to evaluate tutors' performance in facilitating a tutorial session.

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WORKSHOP OUTLINE

I. Introduction
   A. Pre-test
   B. Review of Workshop objectives
II. Philosophy of Problem-based learning - lecture and discussion format
   A. New Learning Paradigm
   B. Significance to developing contemporary, competent clinicians
   C. Student and clinical instructor perceptions of PBL
III. Structure of Problem-based learning - lecture and discussion format
   A. Use of lectures, labs, tutorial sessions
   B. Tutorial Process
      1. Case generated triggers
      2. Clinical reasoning process
      3. Learning issues
      4. Role of the tutor; tutor skills
      5. Recording forms
IV. Participating in as students in a tutorial session - tutorial session format
   A. Group discussion re: tutorial process - discussion format
   B. Group discussion re: tutorial skills - discussion format
V. Course structure/objectives
   A. Occupational Therapy in Physical Disabilities and Work Practice
   B. Occupational Therapy in Pediatrics
VI. Objectives for case studies for afternoon session - lecture and discussion format
   A. Case study - patient with a wrist fracture
   B. Case study - client with a learning disability
VII. Lunch
VIII. Application of knowledge to actual tutorial session - tutorial session format
   A. Practice facilitating a tutorial session
   B. Evaluation of students in a tutorial session
   C. Evaluation of tutor
   D. Tutorial session wrap-ups
IX. Workshop wrap up/Final thoughts
   A. Post test
   B. Workshop evaluation

DESCRIPTION OF PROBLEM

Clinical instructors often state that students lack problem-solving skills

Students feel there is a gap between knowledge learned in school and practical application to clinical setting.

Information explosion makes it impossible to learn all needed knowledge in school.

TRADITIONAL LEARNING

1. Teacher centered -
   Teacher gives knowledge to students

2. Lecture format -
   Usually only 20% of information given in lectures is retained

3. Passive learning

4. Often promotes competition for grades

PROBLEM-BASED LEARNING

1) Student-centered learning
   Students are active learners in this process

2) Collaborative learning emphasized

3) Self-directed learning skills emphasized; students learn how to learn

4) Case based-method provides practical application

STUDENTS' COMMENTS

Today marked the beginning of my second year and hopefully final year at Nova. The first day back is always filled with anxiety, but today was downright traumatic. Not only was I greeted with a new and challenging area of O.T., but a totally new concept of learning.

My group was introduced to the concept of problem-based learning. I don't fully understand what I am supposed to do or exactly how the concept works, but I think it will be very interesting.

Today was the first day of classes. We were introduced to "problem-based learning" and I was very confused. As the morning progressed, I began to get more of an understanding and a realization that this learning method might be good for me. Once we broke up into our groups and started working on Case Study #1, things started becoming clearer to me. I think I'm really going to learn a lot and enjoy this.

I feel so overwhelmed with all the material. How am I to know if I have enough material, or have done enough research? Every time I think I have answered a question it just leads to another question. There just doesn't seem to be enough time to do it all.

I think the discussion went well. We were able to air our frustrations and fears. I got the impression that the group felt that we needed more feedback from the instructors regarding our progress. The group also wanted to have some lecture time -- old habits die hard.

We talked about the problem solving model versus traditional learning. I think that this model is a good way for me to learn, since I learn better visually and through doing as opposed to listening. I still believe that some traditional learning is necessary. Some concrete information from professors is still necessary.

I find that I remember and learn more from doing the case studies than from lecture.

I am really enjoying this class and PBL - I actually look forward to class and the case studies. Ya all have finally gotten my attention.

(PBL) is an excellent learning strategy. I feel that I retain more knowledge and have an easier time relating that knowledge to practice than with traditional learning.

(I) have gained a sense of self-confidence because of the PBL method. I get lost during lectures, but being involved in a group keeps me interested and focused requires me to think. I seem to be remembering things much easier. The terms we are learning in lab are making sense to me.

I just wanted you to let you know that I've really enjoyed the problem-based learning. (I) don't know what (I'm) going to do next semester when we have (to go) back to the traditional approach and memorization.

I'm not sure if I like this way of learning but I'm going to be open-minded and give it a try.

I don't feel like we are learning anything, concrete. I'm afraid that when I get out into the clinic and have my first patient load, I won't know how to treat them. HELP!!!

After today's discussion I feel a bit better. I know we can't possibly learn treatment for all the diagnoses in school, but I do understand that we are getting the principles about treatment.

After having a lecture I can appreciate PBL a little better. During the lecture I was able to phase out whenever I wanted to since I'm not taking an active part in the lecture. I don't remember as much. Maybe PBL isn't that bad after all.

At the beginning I was unsure of this new teaching method, but after I started doing it and found it to be challenging and motivating I REALLY like it now, (even) better than the traditional method of teaching.

Now I prefer the self-directed and group learning format. This prepared me better for my clinical internship. I was able to research my patient's situation and establish an appropriate and effective treatment plan in a reasonable time.

I found this type of learning much more rewarding, more like the real world.

Case based learning gives the student the opportunity to reason like a clinician.

Problem-based learning encourages student growth, confidence in ideas and increase in professional attitude.

CLINICAL INSTRUCTORS' COMMENTS

Students have good analytical skills.

Students actively seek information and independently research questions.

Students took initiative to find needed information and used department resources to solve problems.

Students used information appropriately to plan and implement treatment.

PBL CLINICAL REASONING PROCESS

1) The student perceives that a problem exists and that new knowledge is needed to solve the problem.

2) The student forms a general question identifying the needed knowledge.

3) The student further analyzes the general question to develop more detailed, precise, and more easily answered questions.

4) The student identifies resources for finding answers.

5) The student first finds answers for more detailed questions.

6) The student synthesizes answers to answer the original, more global question.

7) The student applies new found knowledge to original problem or similar problem.

OCCUPATIONAL THERAPY IN PHYSICAL DISABILITIES
AND WORK PRACTICE

PROBLEM-BASED LEARNING
COURSE FORMAT

MONDAY	TUESDAY	WEDNESDAY	THURSDAY
8 - 9 Lecture 9 - 10:30 Lab 10:30- 12 Tutorial	8 - 10 Tutorial 10 - 12 Lab	10:00 - 12 Lec/Lab (Share case studies)	8 - 9 Lecture 9 - 10:30 Lab 10:30 - 12 Tutorial

OCCUPATIONAL THERAPY IN PEDIATRICS

PROBLEM-BASED LEARNING
COURSE FORMAT

MONDAY	TUESDAY	WEDNESDAY	THURSDAY
8:30 - 10 Lecture 10:15 - 12 Lab	8:30 - 10 Lab - in clinical site 10:30 - 12 Tutorial	8:30 - 12 Lec/Lab	8:30 - 10 Lab - in clinical site 10:30 - 12 Tutorial

TUTORIAL SESSION

Case Study:_____ **Date:**_____

FACTS / KNOWLEDGE (What you know)	**IDEAS / QUESTIONS**	**LEARNING ISSUES** (What you need to learn) **FUTURE ACTIONS** (How will you find out)

TUTOR KNOWLEDGE AND SKILLS

Tutor Knowledge

1) Philosophy of problem-based learning (PBL)
2) Structure of problem-based learning
3) Process of Clinical Reasoning/Critical Thinking
4) Course Overview and Objectives
5) Tutorial case objectives

Tutor Skills

1) Facilitates learning by:
   a) Being well informed about the PBL process and by being able to guide the students through the process emphasizing student directed discussion.
   b) Stimulating and motivating all students to participate in the process.
   c) Guiding discovery of specific content through stimulating careful analysis of problems and generation of learning issues.
   d) Questioning and probing to establish appropriate depth of knowledge; stimulating deep learning.
   e) Stimulating evaluation of process and knowledge gained through the process.

2) Provides content knowledge input by:
   a) Having an understanding of the subject matter covered and contributes towards better understanding of subject matter through appropriate and timely input.
   b) Assisting in distinguishing main issues from minor issues to keep students on track in discussion.

3) Demonstrates commitment to group's learning by:
   a) Demonstrating interest enthusiasm, and caring for students and provides a pleasant, productive, and collaborative learning environment.
   b) Facilitates good interpersonal relations and group dynamics.

TUTOR KNOWLEDGE

1) Philosophy of problem-based learning (PBL)

2) Structure of problem-based learning

3) Process of Clinical Reasoning/Critical Thinking

4) Course Overview and Objectives

5) Tutorial case objectives

TUTOR SKILLS

1) Facilitates learning by:

a) Being well informed about the PBL process and by being able to guide the students through the process emphasizing student directed discussion.

b) Stimulating and motivating all students to participate in the process.

c) Guiding discovery of specific content through stimulating careful analysis of problems and generation of learning issues.

d) Questioning and probing to establish appropriate depth of knowledge; stimulating deep learning.

e) Stimulating evaluation of process and knowledge gained through the process.

TUTOR SKILLS

2) Provides content knowledge input by:

a) Having an understanding of the subject matter covered and contributes towards better understanding of subject matter through appropriate and timely input.

b) Assisting in distinguishing main issues from minor issues to keep students on track in discussion.

3) Demonstrates commitment to group's learning by:

a) Demonstrating interest, enthusiasm, and caring for students and provides a pleasant, productive, and collaborative learning environment.

b) Facilitates good interpersonal relations and group dynamics.

QUESTIONS TO FACILITATE TUTORIAL SESSIONS

To probe the student's knowledge deeply

What does that mean?
How do you know that's true?
Would you explain that?
Why do you want to know that?
What does that mean in terms of your idea about the problem?
Who has some thoughts about that comment?
What is the evidence?
Are there other explanations?

To evaluate resources and the student's contribution to the group

Were you able to find all the resources you wanted?
Which resources were valuable and why?
How do you know the information was reliable?
How do you feel about the facts you brought to the group today?
Are you comfortable with the way you have put that together?

Source: Barrows, H.S. (1992) The tutorial process. Springfield, Illinois. Southern Illinois University School of Medicine.

TUTOR EVALUATION

Please indicate your degree of agreement with each statement by circling the appropriate number.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1) The tutor is knowledgeable about the PBL process.	1	2	3	4	5
2) The tutor encourages all students to actively participate.	1	2	3	4	5
3) The tutor asks appropriate questions to stimulate student analysis of the problem.	1	2	3	4	5
4) The appropriately guides students to generate learning issues.	1	2	3	4	5
5) The tutor facilitates evaluation of the tutorial session.	1	2	3	4	5
6) The tutor is knowledgeable about the subject matter.	1	2	3	4	5
7) The tutor contributes expertise appropriately in guiding students to a better understanding of the subject matter.	1	2	3	4	5
8) The tutor demonstrates caring for the students.	1	2	3	4	5
9) The tutor facilitates effective group dynamics.	1	2	3	4	5
10) The tutor provides a comfortable learning atmosphere.	1	2	3	4	5

Comments:

ASSESSMENT OF STUDENT PARTICIPATION

Name of student being assessed _____

Evaluator's Name _____

Please indicate degree of agreement with the following statements by circling the appropriate number.

1. This student showed respect for/ responsibility to group.
   Consider:
   - How they participated in the tutorial session.
   - If they were prompt in attendance.
   - If they followed through on assignments made by the group.
   - They were flexible and available for scheduling of additional group sessions when needed.
   - If they listened to and facilitated other points of view.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

COMMENTS:

2. This student contributed to the group process.
   Consider:
   - If they made positive contributions to the group process.
   - If they encouraged others to participate.
   - If they helped keep group on task and focused.
   - If they facilitated group problem solving.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

COMMENTS:

3. This student was able to determine learning needs.
   Consider:
   If they contributed to defining the learning issues.
   If they were able to determine what needed to be learned in order to facilitate solving the problem.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

COMMENTS:

4. This student was able to find resources and contribute information to the group.
   Consider:
   If they contributed information and resources related to the problem.
   If they were able to find appropriate and contemporary resources.
   If they sought a variety of resources.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

COMMENTS:

5. This student was ability to critically analyze and synthesize information.
   Consider:
   They critically reviewed information for accuracy and pertinence.
   If they were able to explain difficult information to the group.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

COMMENTS:

TOTAL _____

A DISASTROUS DAY!

Scene 1

It was a crisp fall day at Nova Southeastern University. There was great anticipation in the air as the occupational therapy faculty prepared for their annual journey to the Great Southern Occupational Therapy Conference. It was being held in the great state of Arkansas in the capital city of Little Rock. This year was especially important as the practice course faculty would be presenting the unique program curriculum design to the world (or at least those at the Great Southern who wished to attend this presentation). Lori dutifully arranged to pick up Sandee and Tim shortly after 3:30PM in order to arrive at the airport at by 4PM. This was the required "one hour before the flight" and gave plenty of time to check the luggage and meet Ferol and Orit before the 5:30PM flight that traveled to St. Louis. There they would connect to another flight to Little Rock. Thoughtful as ever, Lori dropped Sandee and Tim at the curb with the luggage and went to park the car. As she left the car, Lori noted the time - 3:55PM - plenty of time to check the luggage, get to the gate and sit and chat with her colleagues before boarding the plane.

Lori walked into the terminal and looked around for her colleagues. She finally spotted Tim and Sandee standing near the ticket counter next to an airline employee. Ferol was just turning around from the ticket counter as Lori approach. They all had strained looks on their faces as Ferol said, "I'm not going! Here's the presentation." She flung a small tote bag into Tim's hands. The airline employee grabbed and pulled on Lori's arm as her jaw sank to the floor. "Come on!" he commanded, "The flight is leaving." She looked to Tim and Sandee for direction as to what was going on. Tim said, "Come on, we've got to go! Please come Ferol!" With that Lori ran to keep up with Tim, Sandee, and the airline employee as they made a mad dash for the gate. She turned to look back at Ferol who just waved her to go ahead.

Scene Two

Lori finally caught up with Tim and Sandee as they went through the security check. "What is going on?" she demanded, "Our flight isn't leaving for another hour and a half. Why isn't Ferol coming? And what about Orit?" Sandee explained as they continued to run for the gate, "Weather has delayed several flights throughout the country. This flight was supposed to leave three hours ago. If we don't take this flight, we will have to wait for our flight which will be leaving two hours late." "And what about Ferol?" Lori asked. Tim continued, "Orit isn't here yet. Ferol didn't have her plane ticket, only her boarding passes. They wanted her to buy a whole new ticket." Lori though back about how the travel office at NSU had first delivered an envelope with the tickets to each of them and then two weeks later an envelope with the boarding passes. She thought to herself, "Where did Ferol leave the envelope with the tickets - at school in her office or at home? It's only 4PM, maybe someone is still at school, maybe Ferol's husband is home."

Tim, Sandee, and Lori finally made it on the plane, out of breath and perplexed about the situation. They climbed into their seats as the door of the plane was closed. Tim looked at the tote bag and sadly said, "This is all that is left of Ferol. What are we going to do? We need her for the presentation. I don't know anything about the geriatrics course." They all agreed. Sandee offered that Orit should be arriving at the airport soon and could possibly help solve the situation. They all hoped Orit would get to the airport before Ferol left. Tim wondered aloud if maybe the pilot could radio the ground and get someone to help Ferol find her ticket or get a new one.

Scene Three

All of a sudden Tim spied the phone on the back of the seat in front of him. "We could call someone!" he shouted. "Who do we call?" Sandee asked. Lori thought and then said, "Let's call Peggy at school, surely she could check Ferol's office for the ticket and call Ferol's husband so he could check at home. Then someone could easily run the ticket to Ferol in time for our original flight. It's running late anyhow. Do either of you know how to work this phone?", Lori asked. Sandee started to look at the in-flight magazine for instructions. "You need to slide a credit card through the slot", she informed. Tim quickly offered up his Platinum Gold American Express Preferred Customer credit card. Sandee swiped it through the slot on the phone, pushed in the school phone number, heard it ringing and then shoved it into Lori's hand. Startled, Lori took the phone, heard a person's voice through the crackling static, and shouted into the phone, "Peggy?". "No, this is not Peggy", said the voice. Lori waited hoping the person would identify herself. When she didn't, Lori told them who was calling and asked who she was speaking with. "This is Carol", the person responded. "It's Carol", Lori told the others. There was a sigh of relief. We made contact with the occupational therapy program's best problem solver. Frantically, Lori shouted to Carol,"Tim, Sandee, and I are in a plane somewhere over the Atlantic. We left Ferol in the airport. She didn't have her ticket. Can you check her office to see if it is in there and maybe call her husband to see if she left it at home? Call Ferol at the airport and tell her she still has time to catch a flight that will leave around 7PM. We don't know if she knows our original flight is leaving late. She <u>needs</u> to come to Little Rock. Oh, please help us." Carol replied, "Okay, I'll find Ferol and get her to Little Rock. Is Sandee there?" "Yes, Sandee is here, do you want to talk to her?, asked Lori. "No, just tell her she doesn't have the best student testimonials on PBL with her for the presentation", Carol requested. Lori offered, "Maybe you could fax them to the hotel?". She glanced at Tim as this expensive phone conversation continued. He was looking longingly at his credit card. "No", Carol said, "Just tell her she doesn't have the best stuff to present. Have a good time in Little Rock."

Scene Four

Sandee looked at the boarding passes for the flight to Little Rock as they deplaned in St. Louis. "We need to find the gate for flight 712." Tim went to check the departure board. "There is no flight 712", he said in disbelief, "What else could go wrong?" He looked at his travel documents and discovered that he didn't even have a boarding pass. The plane ticket listed the connecting flight as 719. Lori and Sandee checked their boarding passes - both had passes for the non-existent flight 712. "What flight did they tell you we would be connecting with in St. Louis when they put us on the earlier flight?" Lori asked. No one knew. "Where did they send our luggage?", they asked in unison.

Scene Five

The customer service agent deftly handled the three hysterical passengers, reissuing boarding passes for flight 719, the connecting flight they had originally been scheduled to take from St. Louis to Little Rock. They were assured that their luggage would arrive with them. They now had two hours to proceed with solving the problem of getting Ferol to the Great Southern. "What should we do now?" Tim asked, "Should we call someone back home again to see if they got Ferol on the flight?" "I know what to do!", Lori stated with conviction as she looked at a map of the airport terminal, "There's a restaurant and candy store right next to our assigned gate. Let's go!" Without hesitation all three headed off. Why solve any problem on an empty stomach.

Sitting at the gate the three travel companions reviewed the days events wondering if the well made plans had been made well enough. Had they been able to reason their way through the problem and finding a number of adequate solutions? Had their colleagues at home been able to get the information they needed, ask the right questions, and take the right steps to get Ferol on the plane? Did they still need more information and alternative solutions? Just then they looked up and with disbelieving eyes, confusion, and tremendous relief, saw Ferol and Orit walking towards the gate.

TUTORIAL CASE STUDY #1
Patient with a Colles Fracture

PART 1

Maggie Magee is a 67 year old female referred to home health occupational therapy on October 9, 1996 with a diagnosis of right Colles fracture. Maggie Magee fell while shopping at her neighborhood department store on October 6, 1996. The physician has ordered occupational therapy to evaluate and treat.

TUTOR: Facilitate group to gather information about the following:

1) any surgical procedure done; medical intervention
2) Maggie's medical history
3) precautions
4) living situation
5) hand dominance

PART 2

On your first visit to see Maggie, you interview her and find out the following information. Maggie has been in excellent health prior to this injury. She lives alone with her cat and her dog. Maggie has been very active in her local church particularly with organizing the craft fair. She frequently would drive elderly church members to their doctor appointments. Her son lives in the next town. Maggie works part time in her son Fibber's accounting office. Maggie is very anxious about her present situation as she is right handed and states she is not able to do very much for herself.

In the emergency room on October 6, 1996, the emergency room physician performed a closed reduction and applied a plaster cast from mid humeral level to the MP joints of the right hand. The elbow is casted in approximately 90 degrees of elbow flexion and the wrist is casted in approximately 30 degrees of wrist flexion. You note that the right digits are swollen and are discolored. Maggie is complaining of parasthesias in that hand.

Maggie states that the physician has instructed her to stay home for the next two weeks and not to drive or do any housework.

What are the occupational therapy concerns; what assessments will you do and why?

TUTOR: Facilitate group to list the following concerns and assessments:

1) Maggie's prior level of functioning in activities of daily living
2) Maggie's present level of functioning (Activities of Daily Living evaluation - self care, work, leisure)
3) AROM assessment in joints unrestricted by the cast (right UE)
4) Assessment of edema
5) Sensory Assessment
6) Assessment of functional status of Left UE (AROM, strength, functional level).
7) Pain level
8) Other areas of concern - cognition, safety awareness, home safety

PART 3

You have evaluate Maggie and find the following:

Maggie is intact cognitively. Maggie c/o moderate pain in her right upper extremity, mainly the wrist and fingers. She rates her pain an eight on a scale of 1-10. She c/o of burning, throbbing type of pain in her thumb, index, middle and sometimes part of the ring finger. The pain increases whenever she moves her right fingers or her right arm. The pain is so severe that she awakens throughout the night and cannot get a good nights sleep. She is concerned that since she lives alone she needs to be able to do all the cooking, cleaning, and care for her dog and cat. She needs her son's assistance with these activities at the present time. She fears she will be unable to perform these activities again.

Severe edema is noted in all of the digits of the right hand (approximately two times the size of the left hand). The hand is cold to touch and discolored. She has a great deal of difficulty flexing her fingers to make a fist (the cast restricts the MP motion). She is unable to oppose her thumb to her index or any other finger. She is unable to hold any objects in her right hand because of the cast. She states that at times her hand feels numb and other times she has parathesias.

Maggie is unable to don some types of blouses and dresses over the cast and is not able to don pants or skirts with closures. She requires moderate assist to don a house dress, underpants and socks. She is unable to don her bra, socks or tie shoes/sneakers. Because of the inability to use her dominant right hand Maggie is unable to manage buttons, has difficulty feeding herself with her non-dominant left hand (spills food on herself frequently), requires minimal assist with personal hygiene after toileting, and requires moderate assist with sponge bathing. She requires minimal assist to brush her teeth. She is dependent in simple meal preparation and other household chores such as cleaning.

What will you do to help Maggie?

TUTOR: Facilitate group to identify deficit areas, short and long term goals, stage specific causes, methods and rationale for treatment, and specific activities.
Students should be able to:
1) identify problem of compartment syndrome and take appropriate action
2) recognize signs and symptoms of median nerve problem
3) develop treatment plan to eliminate edema
4) understand need for isometric exercises
5) understand the need for active range of motion exercises in joints unrestricted by the cast
6) understand the need for passive range of motion exercises for the right digits
7) recommend appropriate compensatory techniques and adaptive aids to increase independence in daily living tasks
8) recommend specific patient education
9) recommend appropriate family education

PART 4

The physician removed the cast yesterday. He encouraged her to start doing light housework. Maggie is very anxious about her present situation as she is right handed and states she still needs help with her daily living tasks. She is concerned that her right hand "is not working".

You call the physician and he orders gentle active range of motion and ADL training.

She is happy to have the "heavy cast" off, but still has limited use of her dominant right hand. She has pain in the right wrist. She rates the pain as a six on a scale of 1-10. There is some muscle wasting of the thenar eminence

Sensation for light touch and superficial pain in the thumb, index and middle fingers has been inconsistent. She also c/o parathesias in the thumb, index, and middle fingers with some discomfort in the ring finger although she says this seems to be improving.

AROM in the right upper extremity is as follows: elbow - 50 degrees to 105 degrees; pronation is WFL; supination 0 - 30 degrees; wrist extension - 0 to 10 degrees; wrist flexion - 0 30 degrees; radial deviation is 0 - 10 degrees; ulnar deviation is 0 - 15 degrees; MP joint flexion for second through 5th digits measure 0 - 80 degrees; IP flexion for second through 5th digits measures 0 - 95 degrees. Maggie can oppose the thumb to the 3rd digit. Moderate brawny edema is present around the right wrist and mild to moderate edema is still present in the right digits.

Maggie has difficulty holding things in her right hand. She is attempting to hold a utensil in her right hand to feed herself but she drops the utensil frequently. She still uses her non-dominant left hand primarily to feed herself.

She is also attempting to use her right hand to assist with bathing and dressing but it is painful. She primarily uses her left hand to manage clothing, closures, and hold the washcloth when bathing. She uses the right hand to stabilize objects. She is able to don a loose fitting blouse buttoning buttons with her left hand. She is able to don pants and skirts without closures. She requires assist to tie her shoes/sneakers. She requires minimal assist to don her bra using one-handed techniques. She is able to don loose fitting socks using a one-handed technique.

She has not done much with fixing her hair as she has not been able to use both hands. She is able to comb her hair using her left hand but would like to be able to use the curling iron to curl it each morning. She still brushes her teeth holding the toothbrush in her left hand as she can not yet hold it in her right hand.

She has been preparing simple meals for herself. Her son would make sure all containers were open for her or loose fitting so she could open (e.g. milk carton, cereal box, coffee, baked good box as well as food containers for her cat and dog). She could make a simple sandwich, a cup of coffee, fix a bowl of cereal. Her son and daughter-in-law would prepare her dinners for a few nights and freeze them. All she would have to do is heat each dinner up in the microwave. Her son and his wife do the grocery shopping for her. She has hired a cleaning lady to come in twice a week and do her laundry and general cleaning. She has not started driving again.

TUTOR: Facilitate group to identify deficit areas, short and long term goals, stage specific causes, methods and rationale for treatment, and specific activities.
The student should be able to:
1) recognize signs of resolving median nerve compression secondary to fracture and provide appropriate treatment.
2) develop appropriate treatment to eliminate edema.
3) develop a treatment plan that incorporates active range of motion exercises in to activities.
4) recommend appropriate compensatory techniques and adaptive aids to increase independence in daily living tasks.

Case study developed by Lori T. Andersen, MS, OTR/L
Nova Southeastern University

TUTORIAL CASE STUDY #2
Client with a Learning Disability

PART 1

Kathy Kay is a 7 year old female who was referred to outpatient occupational Therapy on 1-6-96. She has a diagnosis of Learning Disabled. Kathy attends a special school program for children with learning disabilities but she has never received occupational therapy services. A recent psychology assessment indicated a need for an occupational therapy evaluation and treatment as indicated.

TUTOR: Facilitate group to gather information about the following:
1. developmental history
2. Psychologist's findings
3. family situation
4. type of learning disability
5. other interventions

PART 2

On Kathy's first visit to the outpatient pediatric clinic, you interview her mother and find out the following information. Kathy lives with two younger siblings, her mother and father. Her mother is a real estate agent and her father works for an insurance company. Her mother describes Kathy as being shy and always having difficulty with speech and developing her motor skills on time. She says her primary concern is that Kathy has a difficult task with handwriting, but she has not qualified for O.T. in the schools because it is "functional enough". Her poor hand skills also interfere with self-feeding at home and at school. She does receive Speech therapy at the school 2x a week. Her Speech Pathologist reported that Kathy has an auditory processing problem. Kathy's mother says she is also concerned about her self-esteem, due to her difficulty relating to peers and her awkward motor skills.

During the interview you have observed that Kathy moves quickly between play tasks and has not settled into one activity for longer than a few seconds. She also leans against the furniture and large therapy equipment when she is standing still. She has fallen two times since entering the room.

What are the occupational therapy concerns? What assessments will you do? Why have you chosen these?

TUTOR: Facilitate the group to list the following concerns and assessments
1. Developmental milestone achievement dates
2. Kathy's present level of functioning in activities of daily living
3. Assessment of gross and fine motor skills
4. Assessment of sensory processing abilities
5. Cognitive level of functioning
6. Social skills
7. Specific developmental tests

PART 3

You have evaluated Kathy and found the following:

Kathy has great difficulty assuming and maintaining postures required in testing, including body flexion in supine, and body extension in prone. Any position assumed against gravity is able to be held only briefly (2-3 seconds). She demonstrates much compensatory activity in order to stabilize herself in various postures such as holding her arms against her body. Her posture in sitting includes an extremely rounded back with protracted shoulders.

Kathy displays delayed processing for commands such as "walk on this line" and 'jump over this'. She frequently fell when motor demands increased.

Kathy demonstrates very stiff pencil grasp holding, with extreme postural efforts at maintaining a writing position. Her lines are very wavy and she could copy only 1/3 basic shapes. Kathy lacks a pincer grasp when attempting to pick up small objects. She is unable to manage scissors. She tied her shoes with minimal assistance at the end of the session.

On the Peabody Developmental Test she scored 4-4.5 years in gross motor and 3.5-4 years in fine motor skills. On the Bruininks-Oseretsky Short Form she scored at the 66th percentile rank.

What will you do to help Kathy?

TUTOR: Facilitate the group to identify deficit areas, short and long term goals, stage specific causes, methods and rationale for treatment, and specific activities.
Students should be able to:
1. Identify motor planning, body awareness, and postural security problems
2. Identify possible proprioceptive issues
3. Recommend appropriate fine motor tasks
4. Identify an appropriate frame of reference or general tx approach
5. Recommend appropriate gross motor tasks
6. Recommend appropriate sensory integrative tasks
7. Identify strategies for home intervention

PART 4

You have been seeing Kathy for 3 months. She is currently able to hold her arms against gravity for up to 7 seconds during a play activity. She is demonstrating less postural compensation but still has difficulty maintaining postures and will frequently tilt her head and initiate oral motor compensatory activity with more challenging tasks, particularly handwriting.

Kathy's scores on the Bruininks short form have improved to the 69th percentile rank. Although this is an increase, her functional balance is still only fair. She no longer falls in The Motor-Free Visual Perception Test was administered during this treatment period. She scored 20/36 which is 1 year delayed. She demonstrates some difficulty with visual and form constancy.

Kathy has begun to exhibit some behavioral problems at school. Her mother indicates that it is difficult to be the only girl in the class and that this is affecting Kathy.

TUTOR: Facilitate the group to identify deficit areas, short and long term goals, methods and rationale for treatment and specific activities.

1. Recognize types of progress made
2. Identify test results and impact on function
3. Recognize continued areas of need and new areas of need
4. Develop appropriate treatment to address psychosocial concerns as well
5. Provide family-centered strategies to address issues
6. Recommend appropriate treatment for motor and ADL areas

Case study developed by Sandra Dunbar, MA, OTR/L
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